

# SMD Wire Wound Ceramic Chip Inductors

BWHQ Series



Due to accurate wire winding technology, these chip inductors are designed for filtering, impedance matching, resonance and choke circuits for RF designer. Both standard series custom designs are available.

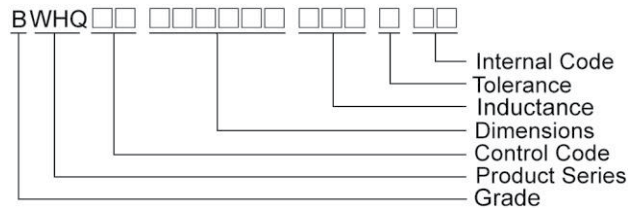
## Features

- RoHS compliant.
- Ceramic body and wire wound construction provide highest SRFs
- Exceptional Q values even at high frequencies
- Highest possible SRFs as well as excellent Q values
- The non-magnetic coil form assures utmost thermal stability, predictability and batch consistency
- The highest Q factors and low RDC to fulfill the needs of mobile applications

## Applications

- RF products for cellular phone
- GPS receiver
- Base Station
- Repeater
- Wireless LAN/ mouse/ keyboard/ earphone
- Remote control
- Security system and other RF modules

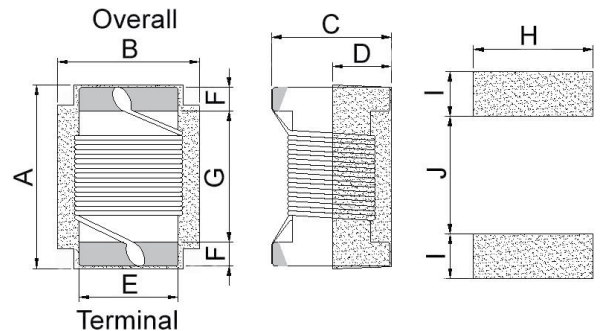
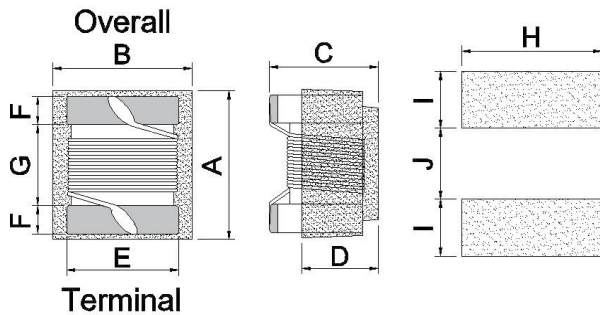
## Product Identification



## Shape and Dimensions/ Recommended Pattern

**BWHQ00231816/ 302821**

**BWHQ00493834**



Dimensions

		A Max	B Max	C Max	D	E	F	G	H	I	J
<b>BWHQ00231816</b>	inch	0.090	0.070	0.061	0.020	0.050	0.017	0.050	0.070	0.040	0.030
	mm	2.29	1.78	1.56	0.50	1.27	0.44	1.27	1.78	1.02	0.76
<b>BWHQ00302821</b>	inch	0.117	0.110	0.083	0.028	0.080	0.020	0.060	0.100	0.040	0.050
	mm	2.96	2.79	2.10	0.70	2.03	0.51	1.52	2.54	1.02	1.27
<b>BWHQ00493834</b>	inch	0.197	0.154	0.135	0.070	0.1	0.025	0.128	0.120	0.045	0.118
	mm	4.95	3.810	3.43	1.78	2.54	0.64	3.25	3.05	1.14	3.00

## Electrical Characteristics

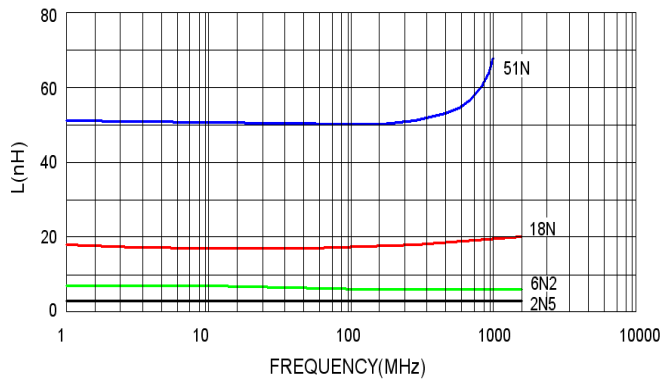
Part Number	Inductance (nH)	Tolerance (±%)	Test Frequency (MHz)	Q Min	Test Frequency (MHz)	SRF (MHz) Min	RDC (Ω) Max	Irms (mA) Max	Color
BWHQ002318162N5□00	2.5	10 / 5	250	80	1500	6000	0.020	1600	Black
BWHQ002318165N6□00	5.6	10 / 5	250	98	1500	6000	0.035	1600	Brown
BWHQ002318166N2□00	6.2	10 / 5	250	88	1000	4750	0.035	1600	Red
BWHQ0023181612N□00	12	10 / 5	250	80	1000	3000	0.045	1600	Orange
BWHQ0023181616N□00	16	10 / 5 / 2	250	72	500	2950	0.060	1500	Yellow
BWHQ0023181618N□00	18	10 / 5 / 2	250	75	500	2550	0.060	1400	Green
BWHQ0023181620N□00	20	10 / 5 / 2	250	70	500	2050	0.055	1400	Blue
BWHQ0023181627N□00	27	10 / 5 / 2	250	75	500	2000	0.070	1300	Violet
BWHQ0023181630N□00	30	10 / 5 / 2	250	65	500	1950	0.095	1200	Gray
BWHQ0023181639N□00	39	10 / 5 / 2	250	65	500	1600	0.095	1100	White
BWHQ0023181648N□00	48	10 / 5 / 2	200	65	500	1400	0.110	1200	Black
BWHQ0023181651N□00	51	10 / 5 / 2	200	65	500	1400	0.120	1000	Brown

**Note: When ordering, please specify tolerance code. Tolerance : G=±2% , J=±5% , K=±10%**

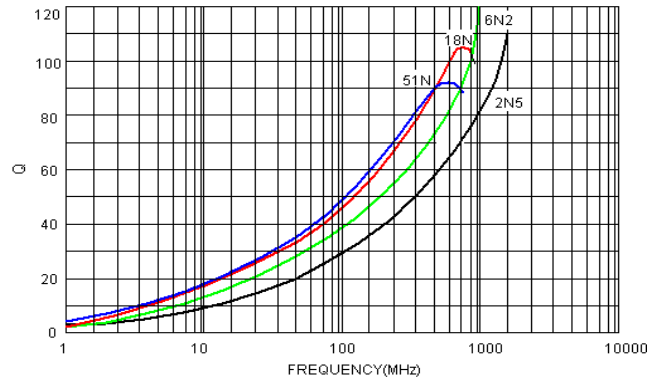
- Operating temperature range - 40°C ~ 125°C(Including self - temperature rise)
- I rms for a 15°C temperature rise from 25°C ambient with current
- Measure Equipment :  
 L & Q : Agilent E4991A+Agilent HP16197A  
 SRF : Agilent HP8753D/Agilent E4991A  
 RDC : HP 4338B or Chroma 16502  
 I rms : HP4284A+HP42841A/HP4285A+HP42841A

## Test Instruments : Agilent E4991A Material/Impedance Analyzer

Typical L vs. Frequency



Typical Q vs. Frequency



## Electrical Characteristics

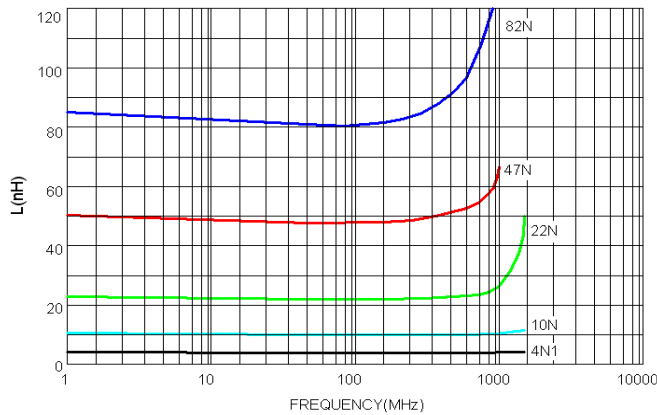
Part Number	Inductance (nH)	Tolerance (±%)	Test Frequency (MHz)	Q Min	Test Frequency (MHz)	SRF (MHz) Min	RDC (Ω) Max	I <sub>rms</sub> (mA) Max	Color Coding		
									1 <sup>ST</sup>	2 <sup>ND</sup>	3 <sup>RD</sup>
BWHQ003028214N1□00	4.1	10 / 5	50	75	1500	6000	0.05	1600	Black	Yellow	Black
BWHQ003028218N2□00	8.2	10 / 5	50	60	500	3600	0.06	1600	Gray	Red	White
BWHQ0030282110N□00	10	10 / 5	50	60	500	3600	0.06	1600	Brown	Black	Black
BWHQ0030282112N□00	12	10 / 5 / 2	50	70	500	2800	0.06	1500	Brown	Red	Black
BWHQ0030282118N□00	18	10 / 5 / 2	50	62	350	2700	0.07	1400	Brown	Gray	Black
BWHQ0030282122N□00	22	10 / 5 / 2	50	62	350	2050	0.07	1400	Red	Red	Black
BWHQ0030282133N□00	33	10 / 5 / 2	50	75	350	1700	0.09	1300	Orange	Orange	Black
BWHQ0030282139N□00	39	10 / 5 / 2	50	75	350	1300	0.09	1300	Orange	White	Black
BWHQ0030282147N□00	47	10 / 5 / 2	50	75	350	1450	0.12	1200	Yellow	Violet	Black
BWHQ0030282156N□00	56	10 / 5 / 2	50	75	350	1230	0.12	1200	Green	Blue	Black
BWHQ0030282168N□00	68	10 / 5 / 2	50	80	350	1150	0.13	1100	Blue	Gray	Black
BWHQ0030282182N□00	82	10 / 5 / 2	50	80	350	1060	0.16	1100	Gray	Red	Black
BWHQ00302821R10□00	100	10 / 5 / 2	50	62	350	1000	0.16	1000	Brown	Black	Brown
BWHQ00302821R12□00	120	10 / 5 / 2	25	50	100	950	0.20	1000	Brown	Red	Brown
BWHQ00302821R15□00	150	10 / 5 / 2	25	48	100	820	0.23	1000	Brown	Green	Brown
BWHQ00302821R22□00	220	10 / 5 / 2	25	48	100	730	0.45	1000	Red	Red	Brown
BWHQ00302821R27□00	270	10 / 5 / 2	25	48	100	650	0.50	900	Red	Violet	Brown
BWHQ00302821R33□00	330	10 / 5 / 2	25	48	100	570	0.65	900	Orange	Orange	Brown
BWHQ00302821R39□00	390	10 / 5 / 2	25	48	100	530	0.70	900	Orange	White	Brown

**Note: When ordering, please specify tolerance code. Tolerance : G=±2% , J=±5% , K=±10%**

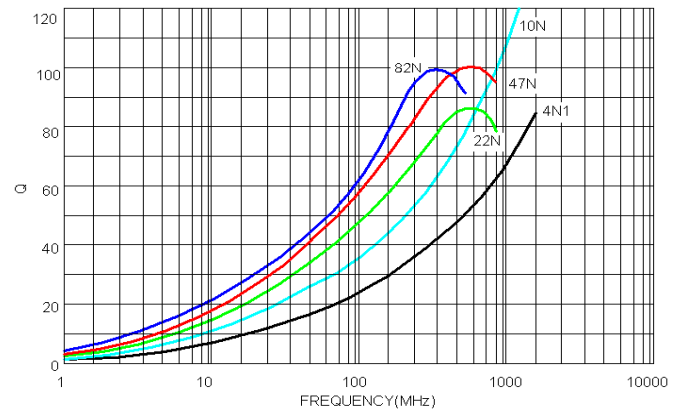
- Operating temperature range - 40°C ~ 125°C(Including self - temperature rise)
- I<sub>rms</sub> for a 15°C temperature rise from 25°C ambient with current
- Measure Equipment :  
 L & Q : Agilent E4991A+Agilent HP16197A  
 SRF : Agilent HP8753D/Agilent E4991A  
 RDC : HP 4338B or Chroma 16502  
 I<sub>rms</sub> : HP4284A+HP42841A/HP4285A+HP42841A

**Test Instruments :** Agilent E4991A Material/Impedance Analyzer

**Typical L vs. Frequency**



**Typical Q vs. Frequency**



## Electrical Characteristics

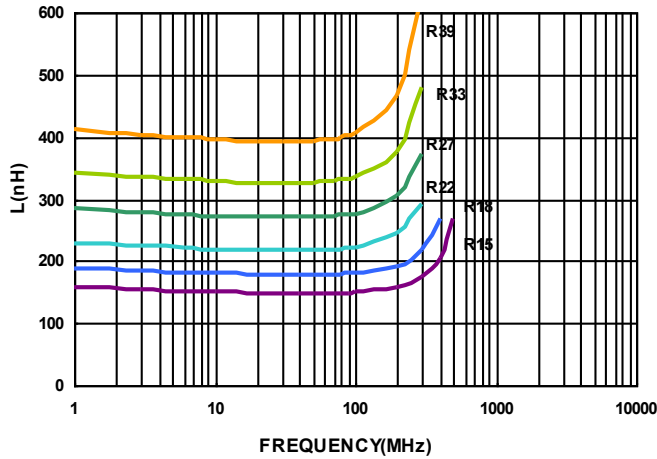
Part Number	Inductance (nH)	Tolerance (±%)	Q Typ.	Test Frequency (MHz)	SRF (MHz) Typ.	RDC (Ω) Max	I <sub>rms</sub> (mA) Max
BWHQ00493834-R15□00	150	2	75	50	860	0.100	1150
BWHQ00493834-R18□00	180	2	80	50	850	0.105	1150
BWHQ00493834-R22□00	220	2	80	50	700	0.110	940
BWHQ00493834-R27□00	270	2	85	50	730	0.120	940
BWHQ00493834-R33□00	330	2	80	50	600	0.135	850
BWHQ00493834-R39□00	390	2	80	50	600	0.150	850

**Note: When ordering, please specify tolerance code. Tolerance : G=±2% ,**

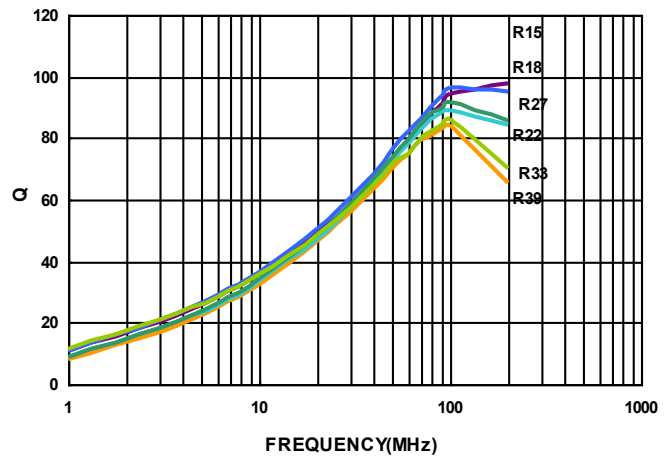
- Operating temperature range - 40°C ~ 125°C(Including self - temperature rise)
- I<sub>rms</sub> for a 15°C temperature rise from 25°C ambient with current
- Measure Equipment :  
 L & Q : HP4286A/HP4287A/AgilentE4991/Keysight E4982A  
 SRF : Agilent HP8753D/AgilentE4991  
 RDC : Chroma 16502  
 I<sub>rms</sub> : HP4284A+HP42841A/HP4285A+HP42841A

Test Instruments : Agilent E4991A Material/Impedance Analyzer

Typical **L** vs. **F**requency



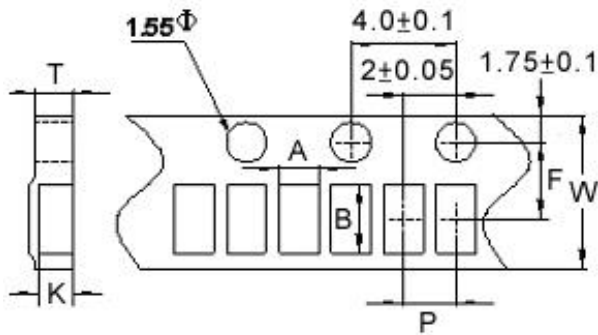
Typical **Q** vs. **F**requency



## Packaging Specifications

### Tape Dimensions

Figure 1



### Reel Dimensions

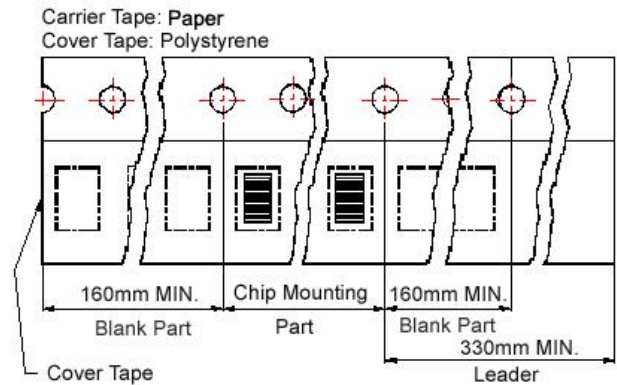
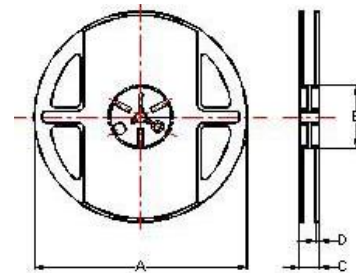
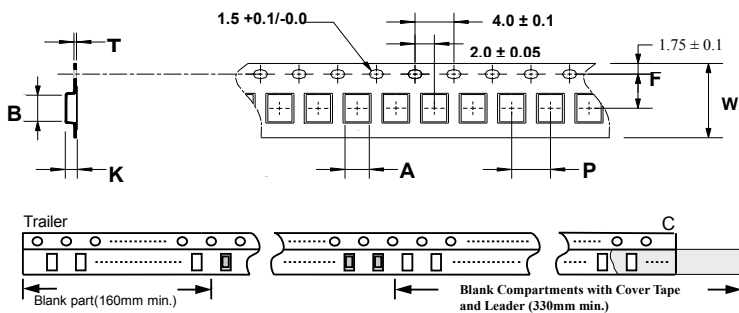


Figure 2



# SMD Wire Wound Ceramic Chip Inductors

BWHQ Series



## Dimensions in mm

TYPE	Fig.	Tape Dimensions							Reel Dimensions				Quantity
		A	B	T	W	P	F	K	A	B	C	D	PCS / REEL
BWHQ00231816	2	1.85	2.45	0.23	8	4	3.5	1.45	178	60	12	1.5	2000
BWHQ00302821	2	2.80	2.95	0.23	8	4	3.5	2.20	178	60	12	1.5	2000
BWHQ00493834	2	3.90	4.90	0.30	12	8	5.5	3.20	178	60	16	1.4	600

## For More Information:

[Americas - prodinfo\\_power\\_americas@yageo.com](mailto:prodinfo_power_americas@yageo.com) | [Europe - prodinfo\\_power\\_emea@yageo.com](mailto:prodinfo_power_emea@yageo.com) | [Asia - prodinfo\\_power\\_asia@yageo.com](mailto:prodinfo_power_asia@yageo.com)

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